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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,380	02/27/2002	Masahiro Yoshimatsu	220082US2	4769

22850 7590 08/17/2004

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EXAMINER

BUDD, MARK OSBORNE

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 08/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/083,380

Applicant(s)

YOSHIMATSU ET AL.

Examiner

Mark Budd

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-20 is/are pending in the application.
- 4a) Of the above claim(s) 10-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-9 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 4, 7-9 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frishe, Smythe or Horton in view of Eda (857).

Frische, figs. 1 and 2 teaches an AT-cut piezoelectric Quartz resonator #1 coupled to a reinforcing plate #3 with a thru hole aligned with the electrodes of the resonator (#6, #7), appropriate leads are provided to connect the electrodes to a drive circuit. Smythe fig. 7 also teaches quartz resonator (#12) with a quartz support plate #321 provided with a thru hole 356. Reference to fig. 2 shows the appropriate electrodes and lead connections are provided. Horton, figs. 1-3 and 5-7 show similar structure, note quartz resonator #12, support plate #14, electrodes 316 and lead connections #18. Horton does not specify a support plate #321 provided with a thru hole #56. Reference to fig. 2 shows the appropriate electrodes and lead connections are provided. Horton, figs. 1-3 and 5-7 show similar structure, note quartz resonator #12, support plate #14, electrodes #16 and lead connections #18. Horton does not specify a support plate material. The support plates of each reference are joined to the piezoelectric resonators over an entire peripheral area. The assemblies of Horton, Smythe and Frische are joined by an adhesive bond e.g. epoxy. However, Eda (857) (see abstract) teaches using direct bonding and eliminate a separate bonding material in order to form a more reliable device. Eda also uses a quartz resonator plate and a

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quartz holding plate. Thus, for the reason taught by Eda (857), it would have been obvious to one of ordinary skill in the art to use direct bonding in either of Horton, Friesche or Smythe. Regarding claims 7 and 20, note figs. 6 and 7.

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horton, Frische or Smythe in view of Eda (857), as applied to claim 3 above, and further in view of Ernisse.

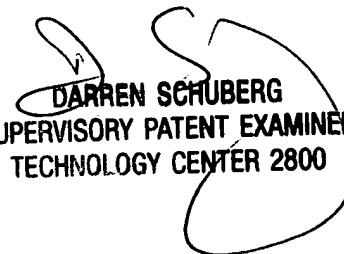
These claims add that the resonator is an AT-cut Quartz and the reinforcing plate is a Z-cut quartz plate. Wherein each of Eda, Frische, Horton and Smythe use an AT-cut quartz resonator, and Eda, Frische and Smythe teach the support plate should also be quartz none of these references specify a Z-cut quartz as the support plate.

However, Eer Nisse (col. 5, lines 25-59) specifically recommends Z-cut quartz as a support plate for AT-cut quartz for better temperature stability. Thus for at least this reason it would have been obvious to one of ordinary skill in the art to use a Z-cut quartz element as the support plate for either Horton, Eda, Smythe, or Frische.

Further cited of interest are Shibata, Eda (973), and Stoermer.

Budd/ds

08/11/04


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